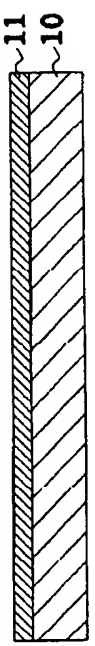


FIG. 1A

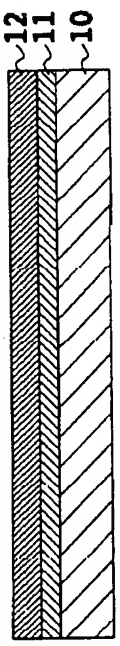


FIG. 1B

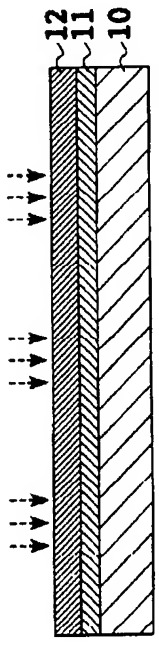


FIG. 1C

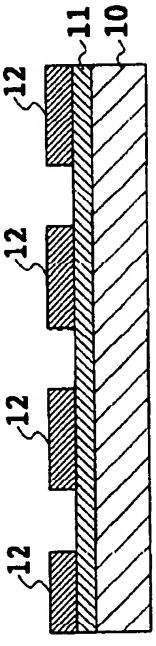


FIG. 1D

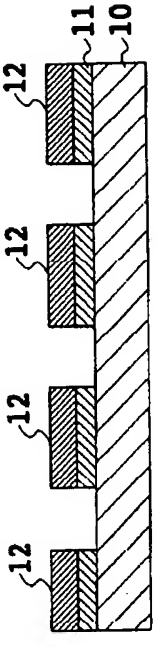


FIG. 1E

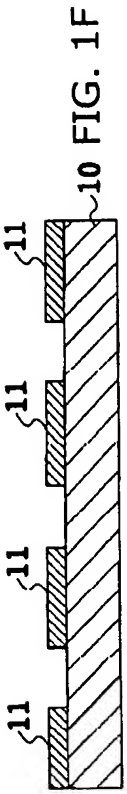


FIG. 1F

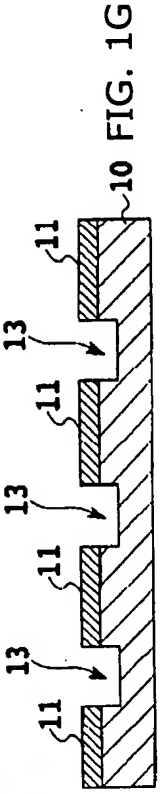


FIG. 1G

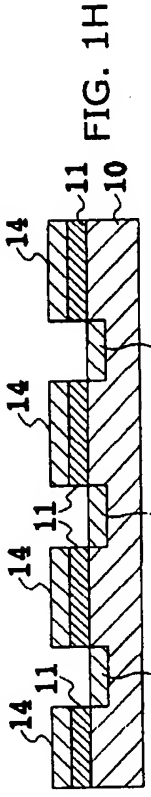


FIG. 1H

FIG. 1I

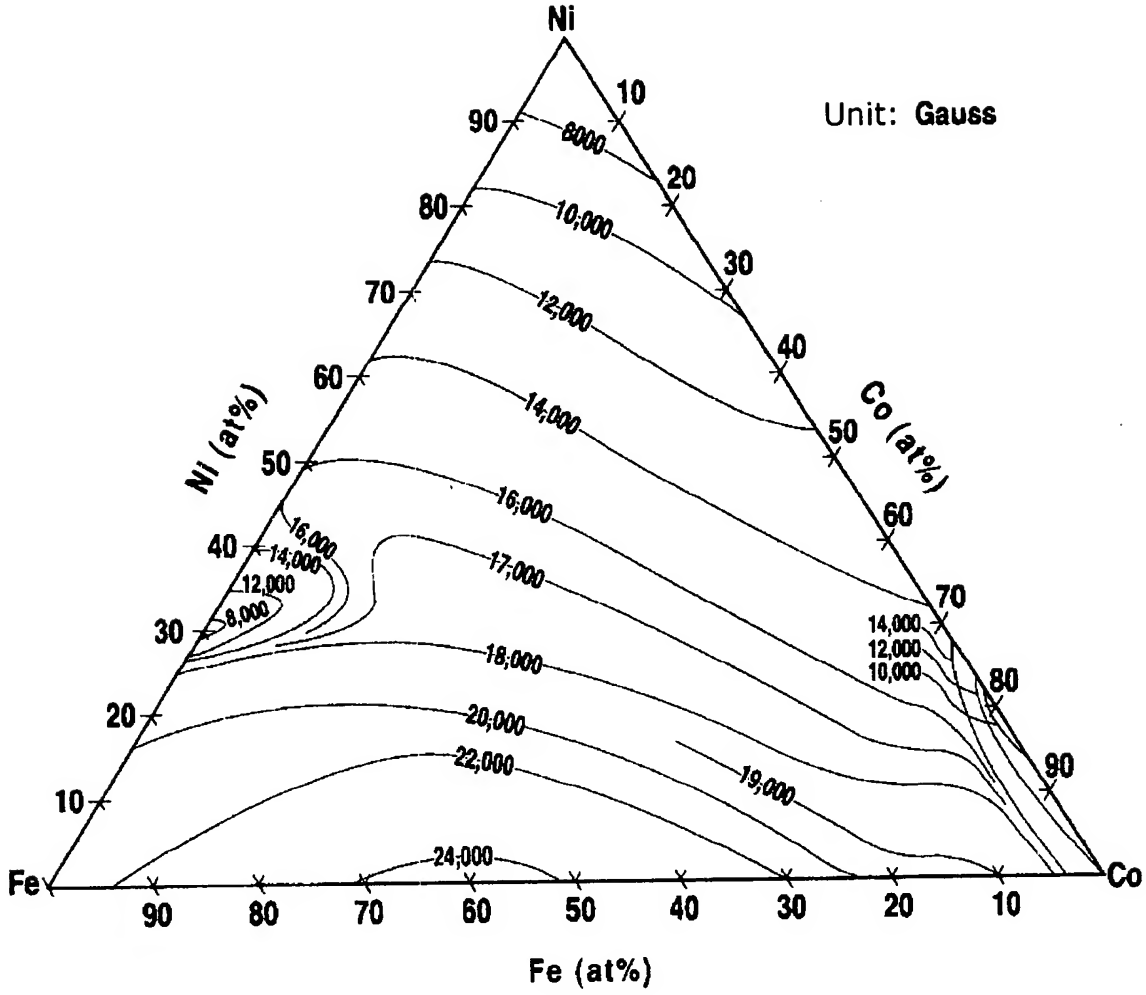
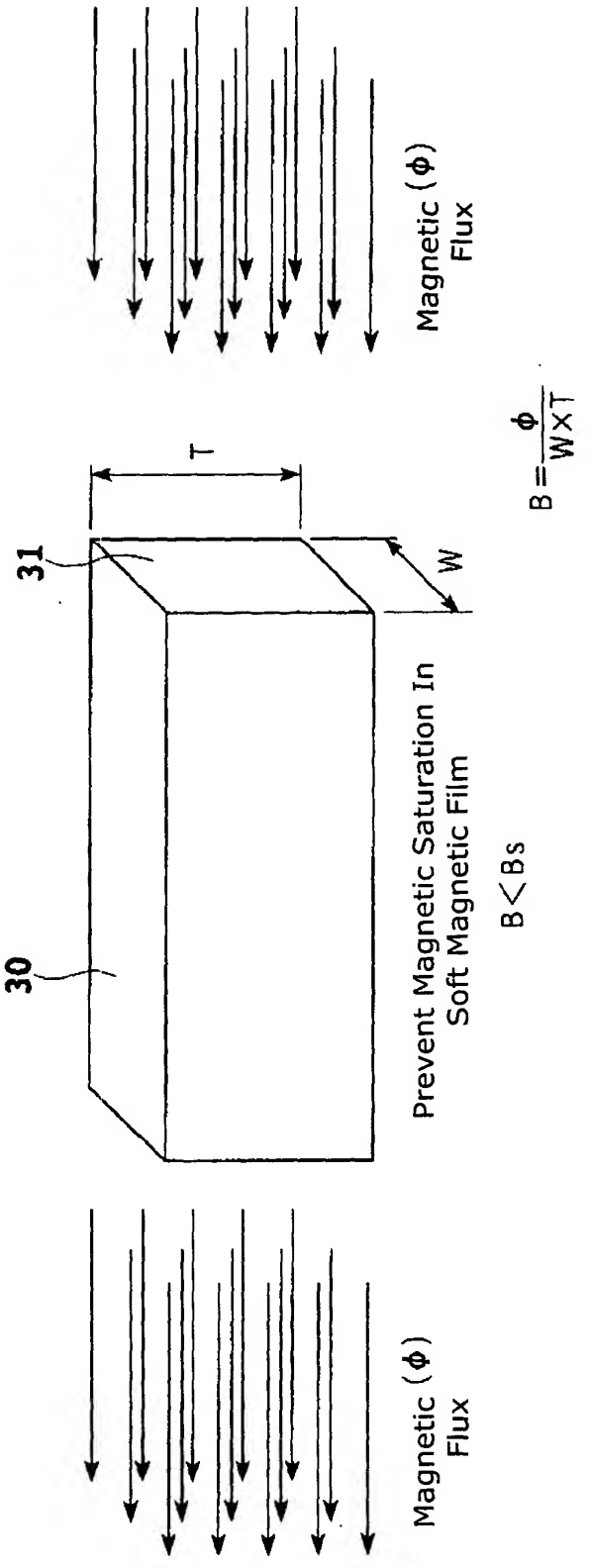

Ni
Unit: Gauss
Ni (at%)
Co (at%)
Fe (at%)
Fe
Co
8000
10,000
12,000
14,000
16,000
17,000
18,000
19,000
20,000
22,000
24,000

FIG. 2

FIG. 3


Magnetic (ϕ) Flux
T
W
31
30
$B=\frac{\phi}{W\times T}$
Prevent Magnetic Saturation In Soft Magnetic Film
B < Bs
Magnetic (ϕ) Flux

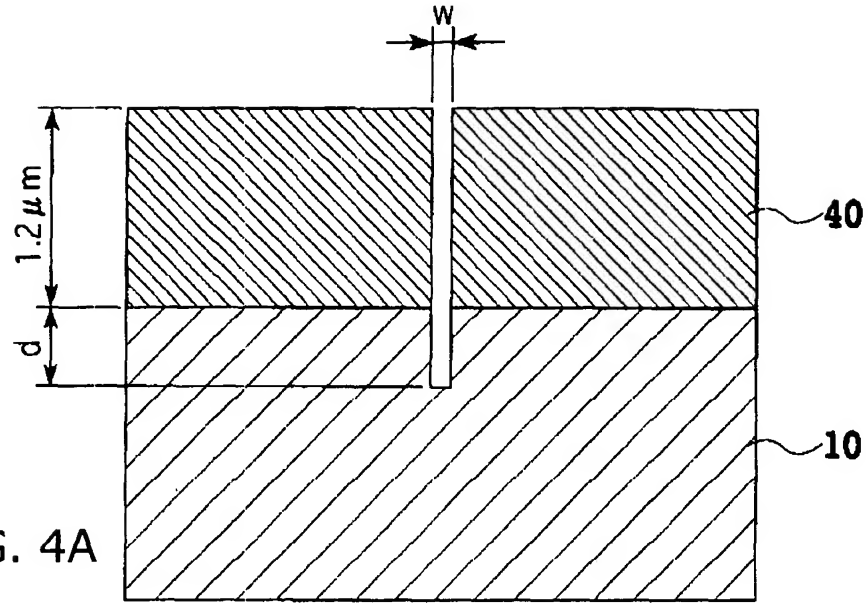


FIG. 4A

Soft Magnetic Film Thickness : 0.5μm

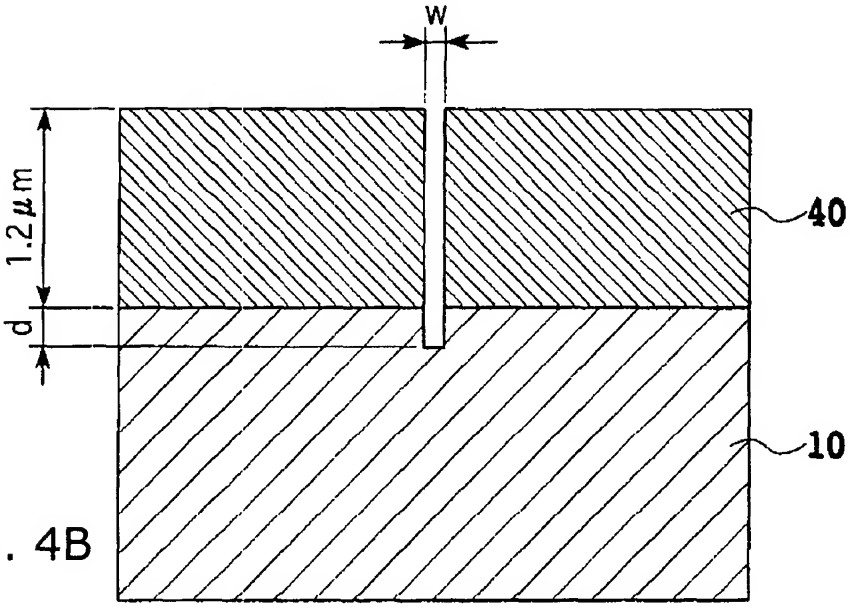


FIG. 4B

Soft Magnetic Film Thickness : 0.25μm

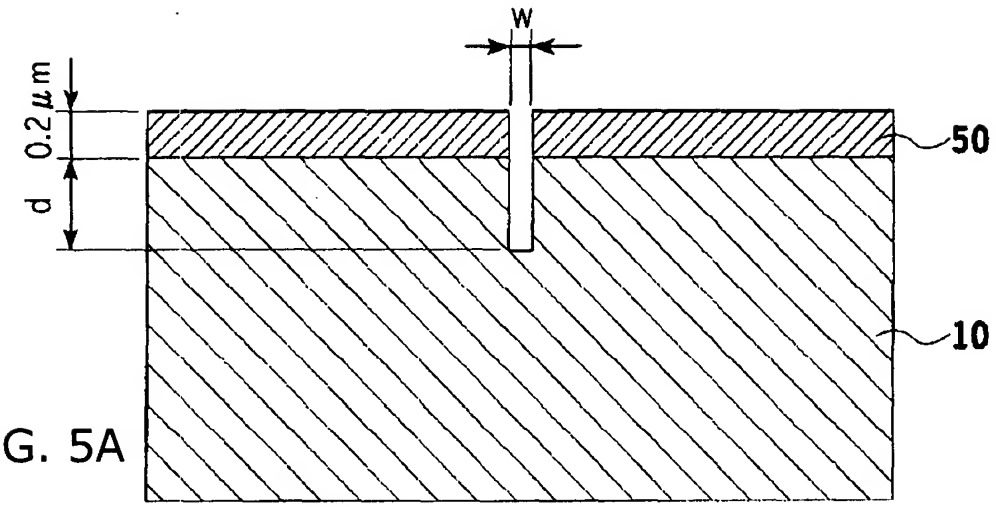


FIG. 5A

Soft Magnetic Film Thickness : 0.5μm

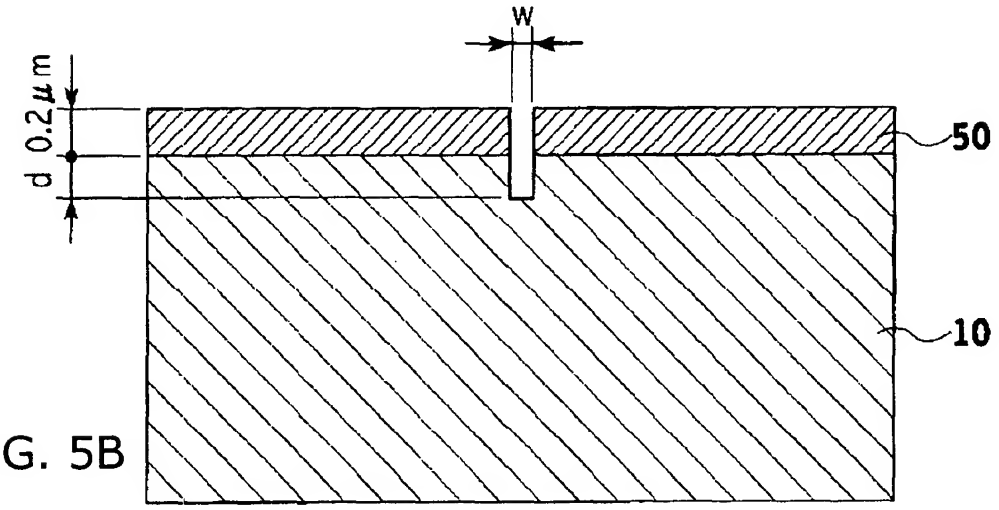


FIG. 5B

Soft Magnetic Film Thickness : 0.25μm

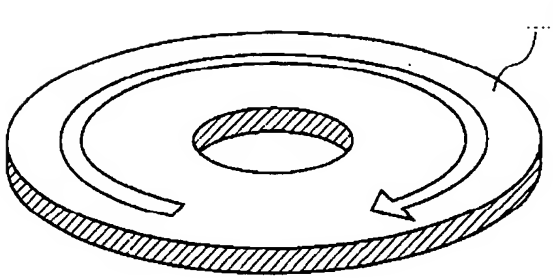


FIG. 6A

Initial Demagnetizing Step

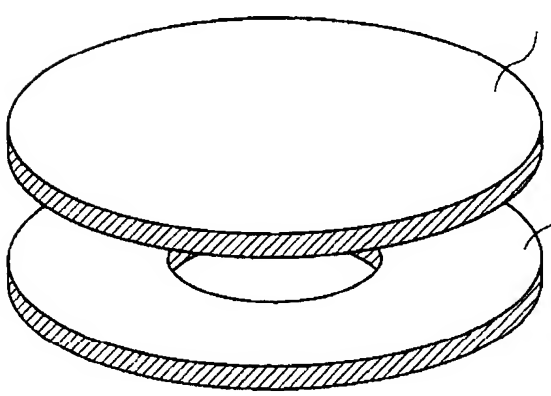


FIG. 6B

Master Positioning Step

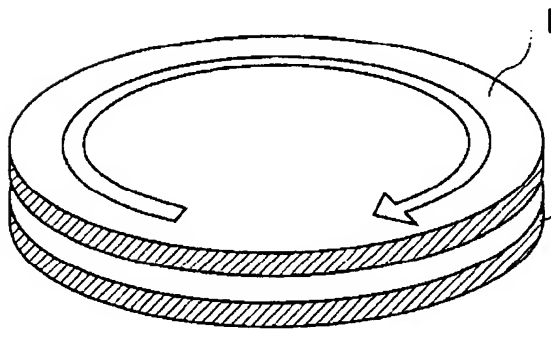


FIG. 6C

Transfer Pattern Writing Step

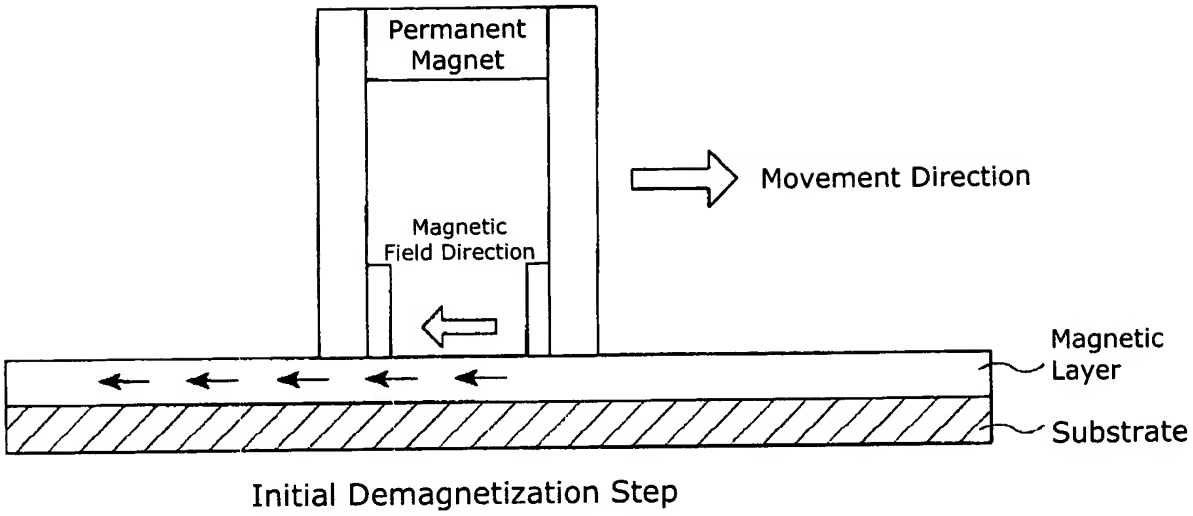

Permanent Magnet
Movement Direction
Magnetic Field Direction
Magnetic Layer
Substrate
Initial Demagnetization Step

FIG. 7A

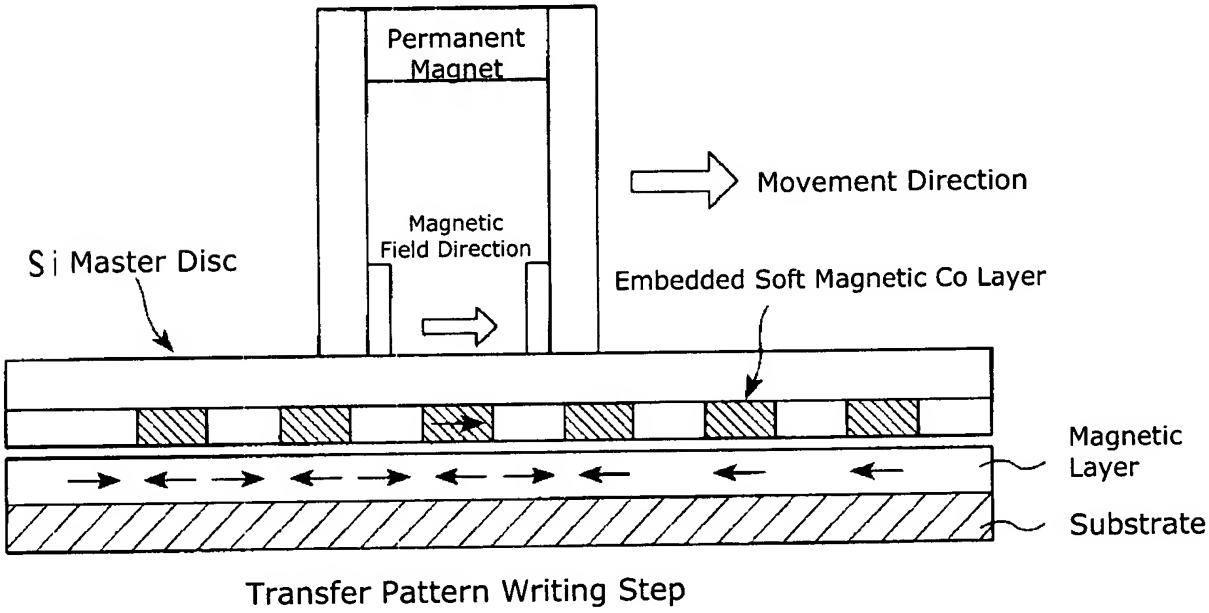

Permanent Magnet
Movement Direction
Magnetic Field Direction
Si Master Disc
Embedded Soft Magnetic Co Layer
Magnetic Layer
Substrate
Transfer Pattern Writing Step

FIG. 7B

FIG. 8A

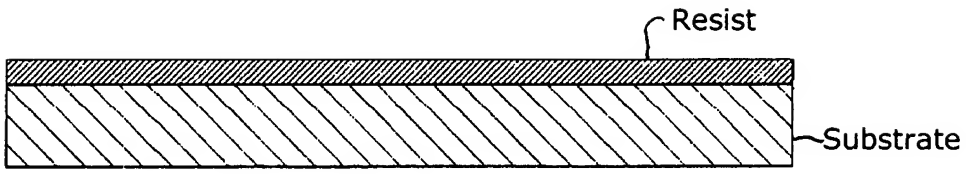


FIG. 8B

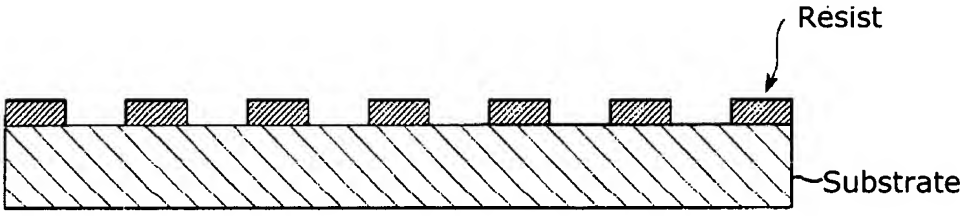


FIG. 8C

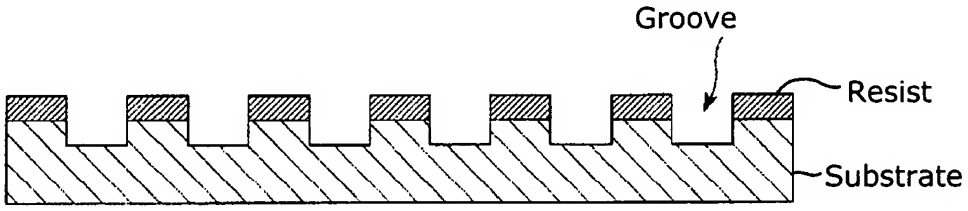


FIG. 8D

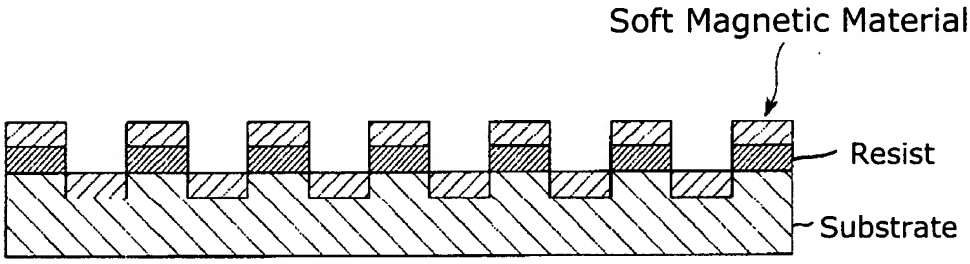
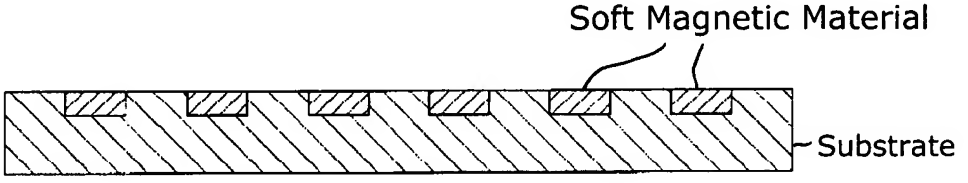


FIG. 8E



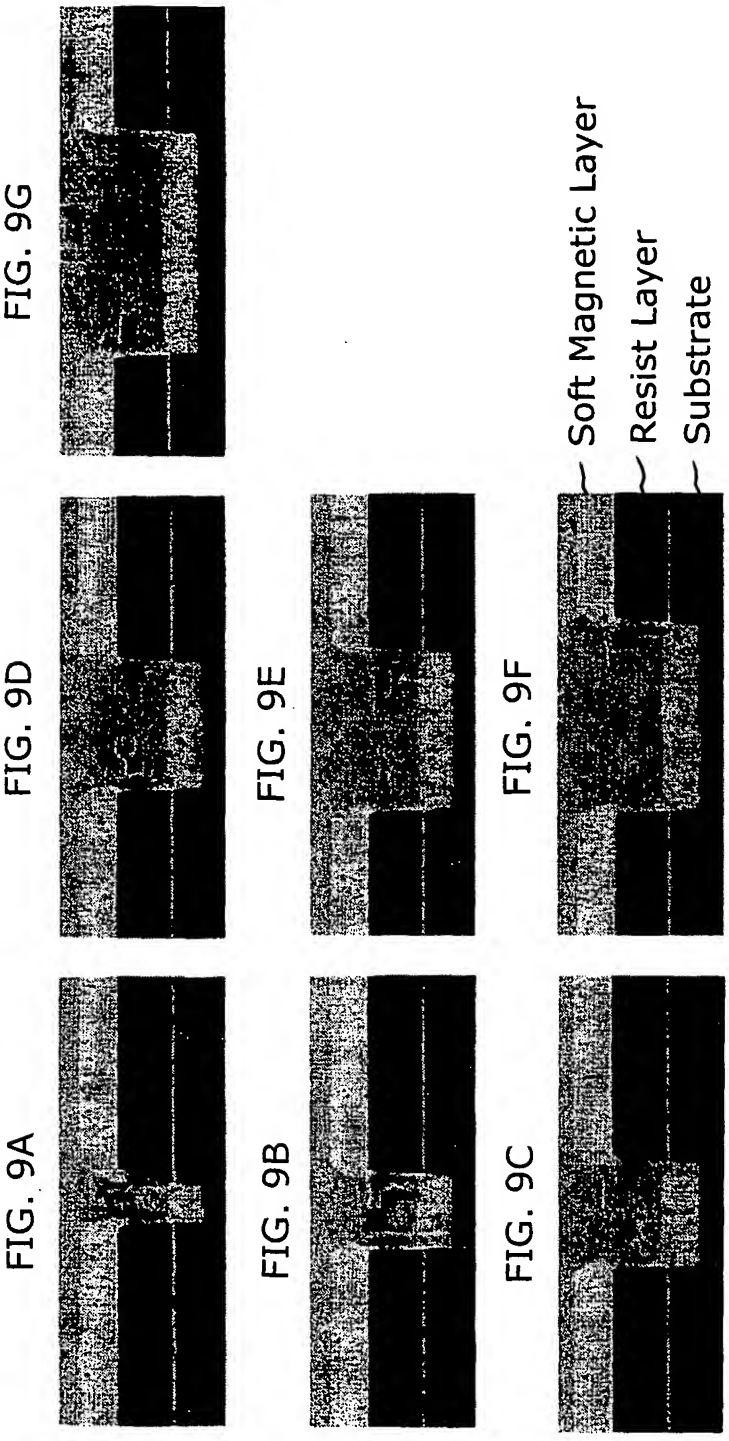
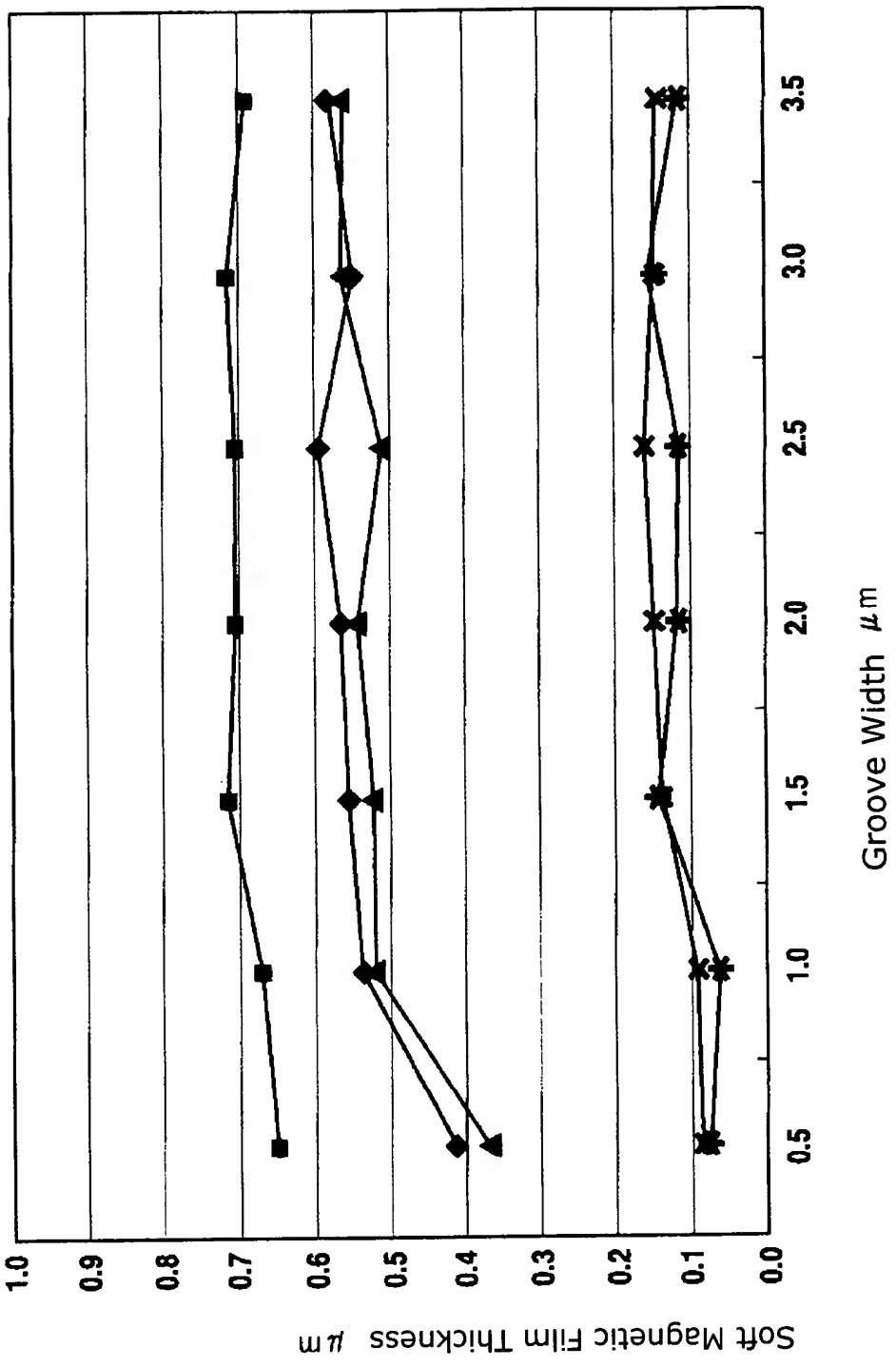


FIG. 9A
FIG. 9B
FIG. 9C
FIG. 9D
FIG. 9E
FIG. 9F
FIG. 9G
Soft Magnetic Layer
Resist Layer
Substrate

FIG. 10


Soft Magnetic Film Thickness μm
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Groove Width μm

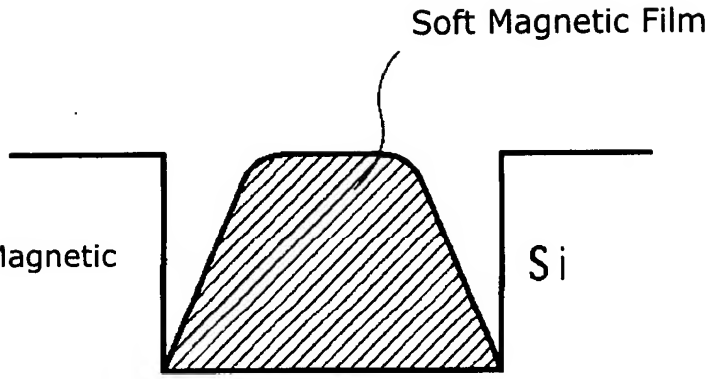


FIG. 11A

Distribution of Soft Magnetic Film in a Groove

FIG. 11B

Magnetic Field in Magnetic Recording Medium Under Magnetic Transfer

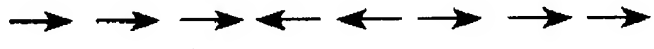


FIG. 11C

Magnetic Field Direction in Magnetic Recording Medium Under Magnetic Transfer

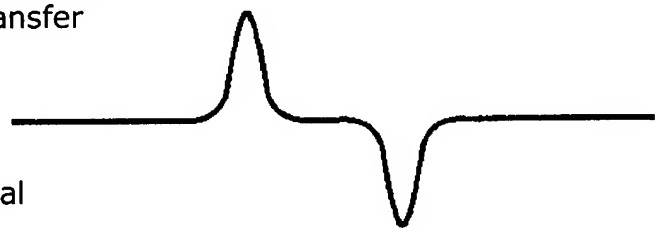


FIG. 11D

Reproduction Signal

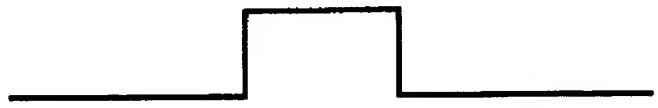


FIG. 11E

Binary Singal

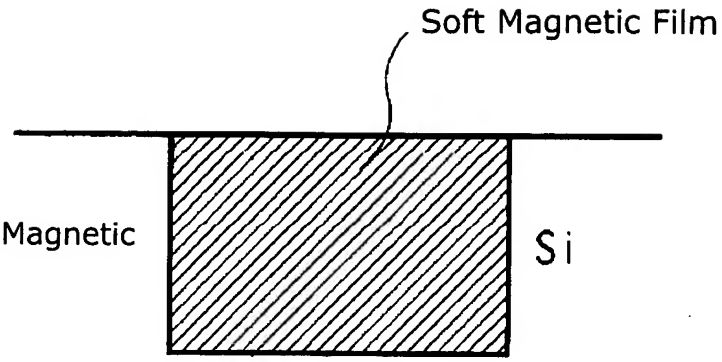


FIG. 12A

Distribution of Soft Magnetic Film in a Groove

FIG. 12B

Magnetic Field in Magnetic Recording Medium Under Magnetic Transfer

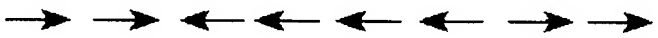


FIG. 12C

Magnetic Field Direction in Magnetic Recording Medium Under Magnetic Transfer

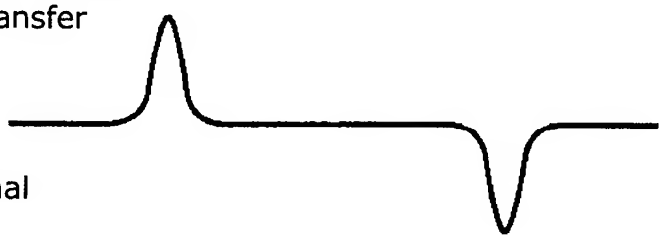


FIG. 12D

Reproduction Signal

FIG. 12E

Binary Singal

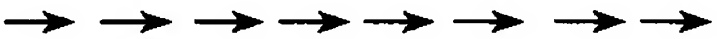
FIG. 13A

Distribution of Soft Magnetic Film in a Groove

FIG. 13B

Magnetic Field in Magnetic Recording Medium Under Magnetic Transfer

FIG. 13C



Magnetic Field Direction in Magnetic Recording Medium Under Magnetic Transfer

FIG. 13D

Reproduction Signal

FIG. 13E

Binary Singal

FIG. 14A

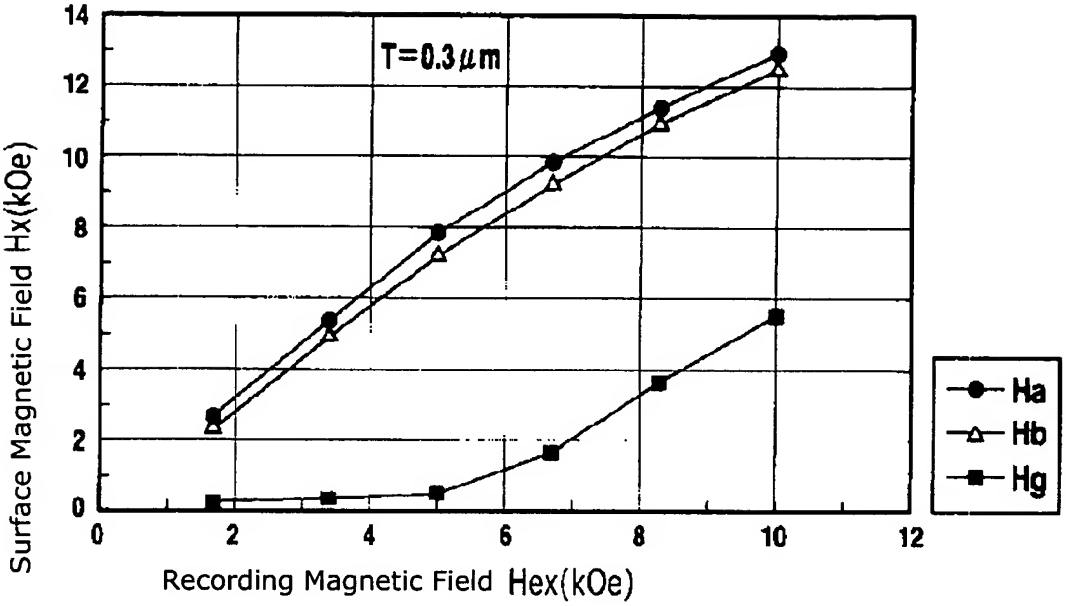
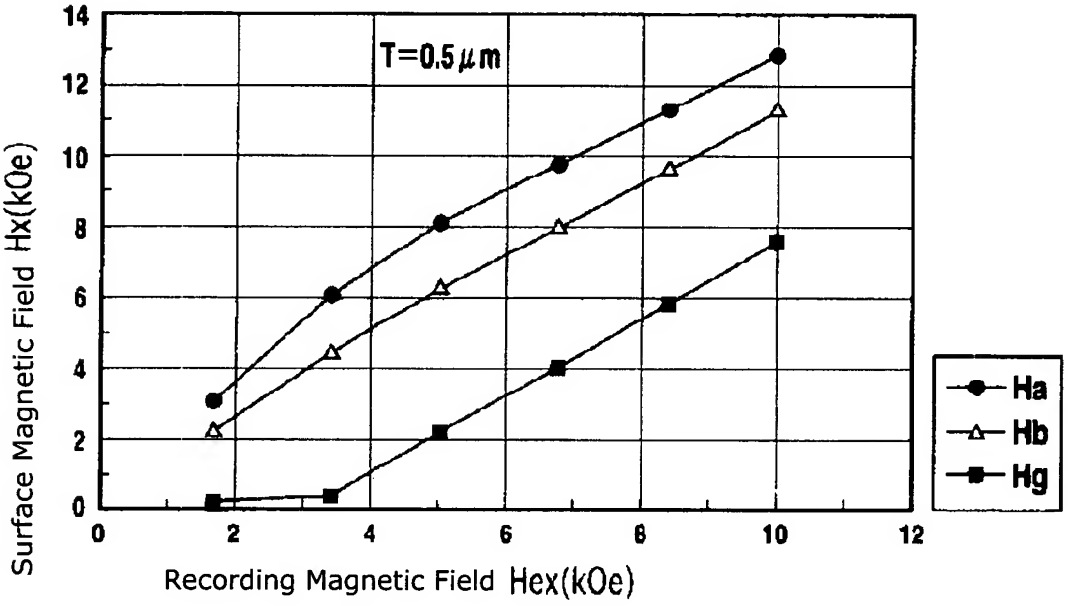


FIG. 14B



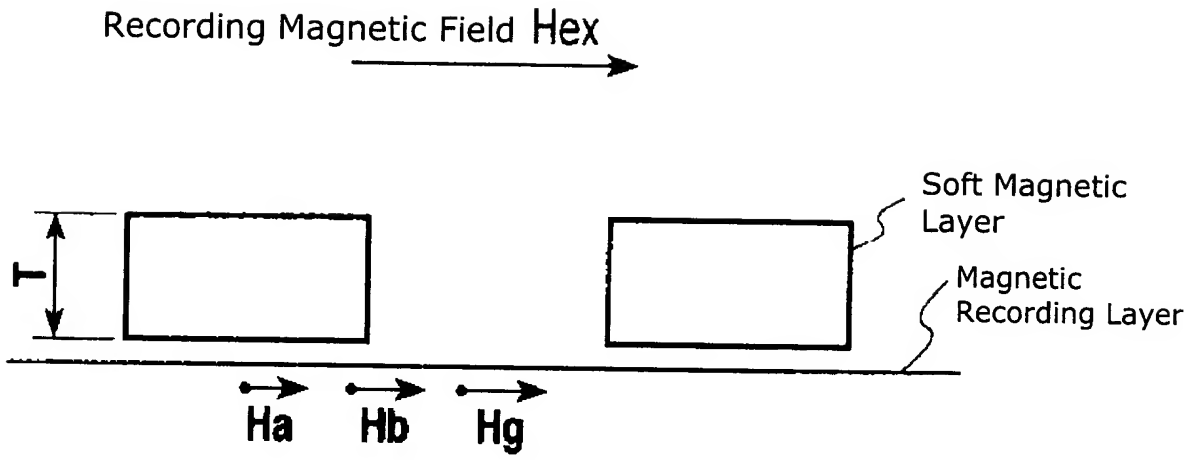

Recording Magnetic Field Hex
Soft Magnetic Layer
Magnetic Recording Layer
T
Ha
Hb
Hg

FIG. 15